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CURRENT LITERATURE

BOOK REVIEWS

The Bonn textbook[1]

For nearly twenty years the *Bonn textbook of botany* has been the most prominent text of college grade in the world, having enjoyed a wider circulation and having been translated into more languages than any of its competitors. The first edition appeared in 1894, STRASBURGER writing the morphology, NOLL the physiology, SCHENCK the cryptogams, and SCHIMPER the phanerogams. Of the four original authors, only SCHENCK remains, but they had already prepared five editions together, thoroughly establishing the book, before SCHIMPER died, a victim of his own restless researches. His place was taken by KARSTEN, who has not only maintained the high standard of his predecessor but has improved this part of the work with each successive edition. NOLL wrote the physiology for the first nine editions, and then died suddenly, in the prime of his physical and mental vigor. JOST took his place, and from this time physics and chemistry have been increasingly conspicuous in this portion of the work.

The heaviest loss of all was sustained in the death of STRASBURGER, who had been the dominating personality of the book and who had prepared the morphology for eleven editions. In the twelfth edition, dated April 1913, FITTING, who succeeded STRASBURGER at Bonn, has written the morphology. There is considerable change in arrangement, some change in subject-matter, and some change in wording, even when there has been no change in ideas. An admiring pupil and personal friend of the master-botanist of his time must be excused if he fails to find an improvement in this section of the book.

SCHENCK, the only survivor of the founders, has been throughout a reliable, consistent writer, steadily improving his contribution and refusing to be swayed by temporary flurries in his subject.

The excellent illustrations have always been a feature of Bonn texts. Some new figures have been added, and for the first time all figures have been credited to their respective authors.—CHARLES J. CHAMBERLAIN.

Goebel's Organography

A second edition of this work[2] is appearing and the first volume is already before us. The revision has been thorough, some features of the first edition having been abandoned and much new material with numerous figures having been added. There is a change of view in regard to leaf arrangement, and alternation of generations receives some attention. Naturally the relation between form and function, the inheritance of malformations, and the significance of juvenile stages are of interest to all botanists, and whether one agrees with the author or not, GOEBEL'S account is stimulating and should put a needful restraint upon those who would blindly assign every such phenomenon to heredity and recapitulation.

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[1] FITTING, H., SCHENCK, H., JOST, L., und KARSTEN, G., Lehrbuch der Botanik für Hochschulen. 12th ed. 8vo. pp. viii+620. *figs. 782*. Jena: Gustav Fischer. 1913.

[2] GOEBEL, KARL, Organographie der Pflanzen. Erster Tiel, Allgemeine Organographie. 8vo. pp. x+513. *figs. 513*. Jena: Gustav Fischer. 1913. *M* 16; bound *M* 17.

The intimation, in the preface, that botanists have left the older fields of morphology needs a word of comment, for there are still some of us who feel as much interest in the problems of evolution, heredity, and phylogeny, as in seeing "the wheels go round." We welcome this book as a wholesome check. The morphologist whose principal interest is in phylogeny needs it, just as the experimental morphologist, whose principal interest is in something other than phylogeny, needs to know more about the structure and development of the objects upon which he is experimenting.

The second volume, dealing with special organography and containing the index, will be awaited with interest.—CHARLES J. CHAMBERLAIN.

NOTES FOR STUDENTS

Osmotic pressures.—RENNER[3] has rendered a very important service to plant physiology by summarizing and subjecting to a critical analysis the literature of recent years dealing with the methods of calculating the osmotic pressure of solutions. All methods heretofore used by physiologists have been based on the assumption that an osmotic pressure of 22.4 atmospheres at 0° C. produces a freezing temperature of $-1.85°$ C. But this depression of the freezing point, according to the physicists, is brought about when a mole of a non-electrolyte is dissolved in 1000 cc. of water; whereas physiologists have always made up their solutions as weight per cent solutions, or as molecular solutions in which enough water is used to make 1000 cc. of solution, but still assuming that the osmotic pressure of these more concentrated solutions is 22.4 atmospheres for undissociated salts. The discussion centers about the work of MORSE, FRAZER, and their co-workers, whose exact determinations have now shown clearly that such solutions must be made up in weight normal instead of volume normal concentrations in order to yield osmotic pressures agreeing with the gas laws. RENNER shows from calculations based upon the determinations of MORSE that there is a very close relation between depression of the freezing point and osmotic pressure. He claims indeed that all the disagreements in the literature between the results of the cryoscopic and plasmolytic determinations of osmotic pressure are traceable to the fact that the

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[3] RENNER, O., Über die Berechnung des osmotischen Druckes. Biol. Centralbl. **32**:486–504. 1912.